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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/561,152	12/16/2005	Yukio Nagasaki	0171-1250PUS1	9582

2292 7590 12/21/2009

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EXAMINER	
LISTVOYB, GREGORY	
ART UNIT	PAPER NUMBER
1796	

NOTIFICATION DATE	DELIVERY MODE
12/21/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/561,152	NAGASAKI ET AL.	
	Examiner	Art Unit	
	GREGORY LISTVOYB	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 September 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamciuc et al (Compared properties of fluorinated heterocyclic copolyimides, Journal of Macromolecular Sci, Part A, v37, Issue 11, October 2000, pages 1407-1435, see Abstract and Search report p. 47-48) herein Hamciuc or Hamciuc et al (New silicon containing phenylquinoxaline-imide polymers, High performance polymers (2002), 14(1), pp 63-75, see Search report p.40) herein Hamciuc-2 in view of Korshak et al (Polyamidophenylchinoxaline, Acta polymerica34(1983), pp 213-215) herein Korshak. (all cited in the previous Office Action).

Hamciuc teaches fluorinated heterocyclic copolyimides have been synthesized by a polycondensation reaction of a diacid chloride containing imide, hexafluoroisopropylidene and methylene groups with aromatic or heteroaromatic diamines containing preformed phenylquinoxaline or 1,3,4-oxadiazole rings (see Abstract).

Regarding Claim 3, Hamciuc teaches polymer with Molecular Weight within the range of 12800-26700.

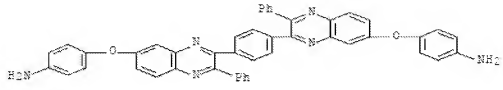
Regarding Claim 4, Hamciuc-2 teaches a new polyimides with phenylquinoxaline rings (see Abstract and Search report p. 40).

In reference to Claim 5, Hamciuc -2 has more than 1% mol of phenylquinoxaline rings (see Search report, page 40).

Regarding Claims 6-8, Hamciuc -2 teaches phenyl groups in aromatic tetracarboxylic acid dianhydride (see Search report, page 40).

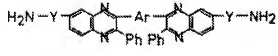
Regarding claims 9-13, Hamciuc -2 teaches fluorescent film with maximum fluorescent range of 415-425 nm (see Search report, p.40).

Hamciuc or Hamciuc -2 does not teach a polyamic acid and polyimide based on a diamine of formula (1). Instead the reference teaches a diamine of the following formula (2) (see Search report, p.47-48):



The difference between the diamine above and the diamine claimed is that the Hamciuc's material has two additional Aryl ether units.

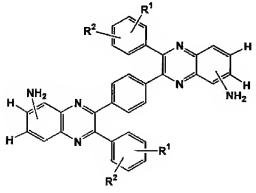
Korshak teaches the following compound (see Scheme 1):



,

Where Y is direct bond (see page 213) and Ar and Ph are benzene rings.

The above compound represents an isomer of a diamine used by the Applicant:



(1)

where R1 and R2 are Hydrogens.

The difference between two above structures is that the amino groups in the Application are present at the ortho-position, whereas in Korshak's disclosure it is at meta- position with respect to the position of the nitrogen atoms in the quinoxaline moiety. However, both compounds are structural isomers.

In accordance to MPEP 2144.09 the structural analogs are *prima facie* obvious in the absence of showing unexpected results.

Therefore, it would have been obvious to a person of ordinary skills in the art to interchangeably use Korshak's and Applicant's diamines, since they are structural analogs.

Korshak teaches diamine , structurally analogous to one of the Application. The advantage of Korshak's diamine over Hamciuc's one is that it provides polymer with higher Tg due to higher stiffness of the diamine (Ph-O link provides more mobility of the diamine molecule). Therefore, polyimides based on Korshak's diamine provide higher modulus, tensile strength and broader temperature range, which is useful for applications at elevated temperatures.

Thus , it would have been obvious to a person of ordinary skills in the art to use Korshak's diamine in Hamciuc's copolyimide in order to achieve higher modulus, tensile strength and broader temperature range, which is useful for the applications at elevated temperatures.

In reference to claims 14 and 15, Hamciuc or Hamciuc -2 or Korshak does not teach R1 and R2 where R1 and R2 each independently denotes a C1-20 alkyl group, C1-20 alkoxyl group, or C1-20 fluoroalkyl group.

In a case law (see *re Lohr* (CCPA 1963) 317F2D 38, 137 USPQ 548) related to a similar substitution, replacement of two Hydrogen groups to methyl groups was decided unpatentable, since unexpected results due to the above substitution were not shown.

Therefore, it would have been obviously to a person of ordinary skills in the art to interchangeably use methyl substituted or unsubstituted polyimide and polyimide precursor unless unexpected results due to the above substitution were shown.

Response to Arguments

Applicant's arguments filed 9/2/2009 have been fully considered but they are not persuasive.

Applicant argues that alhough Korshak's diamine is a structural analog of the Applicant's one, the reference does not provide a material with structure, which is equal to one of the application. Applicant further submits that the polyimide of "quite different" structures result in using Korshak's and Applicant's polyimide. Applicant submits that Applicant's polyimide have high heat resistance and low electrical resistance.

However, Applicant does not present any factual data to prove the point of view above. Examiner suggests that the Applicants may compare the claimed invention with prior art that is more closely related to the invention than the prior art relied upon by the examiner. *In re Holladay*, 584 F.2d 384, 199 USPQ 516 (CCPA 1978); *Ex parte Humber*, 217 USPQ 265 (Bd. App. 1961) (see also MPEP 716.02). The comparison can be made in form of Affidavit or Declaration under 37 CFR 1.132.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GREGORY LISTVOYB whose telephone number is (571)272-6105. The examiner can normally be reached on 10am-7pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/James J. Seidleck/
Supervisory Patent Examiner, Art Unit 1796

GL